August 11, 1951.

Dr. Bruce Stocker,
Carnegie Institution,
Cold Spring Harbor, L.I., N.Y.

Dear Bruce:

Thanks for your card about a source for gradocol membranes. I had hoped we might be able to get a set at closer hand, from Luria, but his assistant at Urbana hasn't sent them yet. We'll get to it, I hope, before too long.

The whole problem is still very confusing. Zinder finds still that mix different factors are changed quite independently of each other, so that this system bears no resemblance to a "sexual" process as in K-12. The ability to produce or respond to the filtrable agent appears to be quite general among typhimurium strains, although some respond more or less well to penicillin or phage. The effect of penicillin seems to be mediated by the release of the donor's own lysogenic phages which (possibly after a virus mutation, but I doubt it) can act back on their source. The agent goes through the sintered Pyrex filters which so far has prevented anything that can regenerate bacteria directly from coming through. There seems to be no doubt that phage- or penicillin treated Salmonella xxxxxxxxx regularly permeate filters (e.g. 14-1b Mandler ) which are quite effective against untreated cultures. To a lesser extent this may also hold for K-12, but nothing interesting by way of genetic activity has been found in such filtrates. The relationship between the Salmonella agent (FA) and L- (or as Norman Horowitz dubbed them, "h.ll"-)forms is still unsettled. Zinder has not been able to cultivate anything (except persistent contaminants) on serum agar from filtrates sterile on, say, nutrient agar. The sintered Pyrex filters do however pass granules that swell into large bodies with rabbit anti-O serum, so these, at any rate, have not been separated from FA.

I do hope you were serious about two things you mentioned: your interest in cultivating L-forms from Salmonella, and the possibility of a visit of more than a day-or-two-'s duration. With respect to the former, we may have been trying the impossible the wrong way: noone has explicitly xxxx claimed to be able to cultivate them from filtrates, barring the stabilized "L"s of S. moniliformis, and a note from Nobel about having done this once with E. coli B - but which I have not yet been able to confirm. Esther and I are just about finished with the indirect selection experiments, using replica plates (i.e. velvet) to isolate drug and phage-resistant mutants from populations never in contact with the selective agent. Three or four enrichment steps are needed, but the method shouldbe quite generally applicable. Did you see the newspaper accounts of Hinshelwood's address to the BAAS?

Sincerely,

Joshua Lederberg